Remarks

Applicants thank the Examiner for carefully considering the subject application.

The Office action applies Glugla et al. (U.S. 6,389,086) under 35 U.S.C. §102(e) to the pending claims. However, before responding in detail, Applicants believe that some background review may be helpful.

As described in the application as filed, the present application is directed to providing improved catalyst heating during an engine start. While Glugla et al. also attempts to provide improve starting, it teaches one skilled in the art that the engine should be started with some cylinders deactivated. Specifically, it states (Col 1.61 – col. 2, line 2, emphasis added):

> In carrying out the above objects and other objects, advantages, and features of the invention, a system and method for controlling an internal combustion engine having at least one bank of cylinders operable in a variable displacement mode include starting the engine with at least one bank of cylinders deactivated to increase load on at least one other bank of activated cylinders and reduce time required for an engine and/or vehicle component to reach a desired operating temperature. In one embodiment, ignition timing

See also Col. 3, lines 45-62 and Col. 6, lines 39-54, along with Figure 3, for example. Note also that the routine of Figure 4 applies to re-activation from cylinder deactivation.

While such operation may indeed increase engine load to active cylinder, Applicants have recognized a way to achieve a similar load increasing result, yet maintain all cylinders active and with a potential for heat generation from all cylinders. As described in amended claim 1:

> A method for controlling an engine have at least first and second groups of cylinders, the engine coupled to an emission control device, comprising:
>
> starting the engine by firing cylinders from both cylinder groups; and then
>
> operating the first group of cylinders at a first ignition timing and rich of stoichiometry and operating the second group of cylinders at a second ignition timing more retarded than said first group and lean of stoichiometry.

Thus, it is possible to start the engine by firing cylinders from both cylinder groups. Then, the system can still achieve increased load and heat by adjusting the ignition timing of the cylinder groups differently to provide rapid heating, while at the same time providing good combustion and control. I.e., the cylinders with more retard can result in increased heat compared with the cylinders with less retard, yet both cylinder groups can still provide heat. Further, the air-fuel ratios can be adjusted to provide even more heat.

Applicants can find no disclosure in Glugla et al. of staring the engine by firing cylinders from both cylinder groups; and then operating the first group of cylinders at a first ignition timing and rich of stoichiometry and operating the second group of cylinders at a second ignition timing more retarded than said first group and lean of stoichiometry. Applicants also can find no motivation to modify Glugla et al. to achieve the approach of claim 1. Finally, Applicants submit that Glugla et al. is assigned to the same assignee as the subject application, and thus is unavailable under 35 U.S.C. §103(c).

The above arguments also apply to claim 5.

Based on the foregoing comments, the above-identified application is believed to be in condition for allowance, and such allowance is courteously solicited. If any further amendment is necessary to advance prosecution and place this case in allowable condition, the Examiner is courteously requested to contact the undersigned by fax or telephone at the number listed below.

Please charge any cost incurred in the filing of this Amendment, along with any other costs, to Deposit Account No. 06-1510. If there are insufficient funds in this account, please charge the fees to Deposit Account No. 06-1505.

CERTIFICATE OF FACSIMILE

I hereby certify that this correspondence is being sent via facsimile to the U.S. Patent and Trademark Office at (571) 273-8300 on November 14, 2005.

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Respectfully submitted,

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